



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,625	08/05/2003	Kyeong Jin Kim	041501-5455-01	6368
9629	7590	08/10/2006	EXAMINER	
MORGAN LEWIS & BOCKIUS LLP 1111 PENNSYLVANIA AVENUE NW WASHINGTON, DC 20004			NGUYEN, DUNG T	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 08/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/633,625

Applicant(s)

KIM, KYEONG JIN

Examiner

Dung Nguyen

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-18, 22 and 23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-18, 22 and 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/07/2006 has been entered.
2. Applicant's amendment dated 05/22/2006 has been received and entered. By the amendment, claims 11-18 and 22-23 are now pending in the application.

### ***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 6,122,024 (to Molsen et al.) in view of United States Patent 6,313,894 Bal (to Sekine et al.).

As to claim 11 (amended), Molsen teaches and discloses switchable liquid crystal devices. Molsen shows in Figure 1, a first substrate (transparent substrate 1), a second substrate (transparent substrate 4) opposing the first substrate (transparent substrate 1), a liquid crystal layer (nematic liquid crystals 8) between the first (1) and second (4) substrates, the liquid crystal having photopolymerisable material with one or more reactive groups mixed in with a non-chiral nematic liquid crystal and whereby ultraviolet radiation forms a helical polymer network (See

Art Unit: 2871

Column 4, Lines 32-67)(Applicant's liquid crystal layer between the first and second substrates, the liquid crystal layer having a photo-reactant material and a liquid crystal, wherein the photo-reactant material and the liquid crystal form a polymer network.") and the liquid crystal material (8) is aligned in a direction different from the photo-reactant (9)(see figure 2).

Molsen does not appear to explicitly specify at least one sealant along a periphery of one of the first and second substrates. Sekine teaches and discloses a liquid crystal display with regions of polymer networks and with reference to Figures 5A and 5B, a main sealing agent (13) along a periphery of one of first (11) and second (12) substrates. The main sealing agent (13) is used in the display to secure a liquid crystal material between substrates and to contain the liquid crystal material in a display region. The main sealing agent (13) serves to maintain the opposite glass and active matrix substrates parallel to each other and to contribute to a constant distance between the substrates (Column 7, Lines 43-48). Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystal displays at the time the invention was made to modify Molsen in view of Sekine to incorporate at least one sealant along a periphery of one of first and second substrates into a liquid crystal display device (1) to contain the liquid crystal layer and photo-reactive material in a display region, (2) to contribute to the substrates remaining parallel with each other, and (3) to maintain a constant distance between the substrates.

As to claims 12 and 13, the main sealing agent may include thermosetting resins, UV-cured resins, and dual active resins which can harden in the presence of UV rays as well as heating (Sekine at Column 7, Lines 43-48).

Art Unit: 2871

As to claim 14, it may be presumed that the photo-reactant material includes one of a photo-reactant polymer and photo-reactant oligomer.

As to claim 15, although not illustrated, Sekine presumably contains at least an alignment layer for alignment of the liquid crystal layer (17). Molsen also includes alignment layers (Figure 1, alignment layers 3 and 6).

As to claim 16, Sekine has, with reference to Figure 7, black stripes (222) (Applicant's light-shielding layer), a color filter (fluorescence layer, 221), and common electrode (223) all on opposing substrate (220) as conventional elements of a color active matrix display.

As to claim 17, Sekine, with respect to Figure 5B, illustrates at least one spacer (14) to maintain substrate gap.

As to claim 18, the spacer of Figure 5B (spacer 14) appears columnar in shape.

5. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 6,122,024 (to Molsen et al.) in view of United States Patent 6,313,894 B1 (to Sekine et al.) and further in view of United States Patent 5,872,609 (to Hiji et al.).

As to claim 22, Molsen does not appear to explicitly specify that the photo-reactant material remains uncured. Hiji teaches and discloses a light control element and method wherein a liquid crystal and photo-setting uncured material are irradiated with coherent light beams to result in an anisotropic gel in which orientation is periodically fixed (Column 6, Lines 14-40). Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Molsen in view of Hiji for an uncured photo-reactant material' so that an anisotropic gel could be formed with periodically fixed orientation.

Art Unit: 2871

6. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 6,122,024 (to Molsen et al.) in view of United States Patent 6,313,894 B1 (to Sekine et al.) and further in view of United States Patent 5,517,344 (to Hu et al.).

As to claim 23 (new), Molsen does not appear to explicitly specify a first sealant along a periphery of one of the first and second substrates and a second sealant along the periphery of the first sealant, thereby forming a double sealant. Hu teaches and discloses a system for the protection of drive circuits formed on the substrate of a liquid crystal display in which sealing bands (12 and 19 of Figure 6, for example) enclose a driving circuit (11) to protect the driving circuit. It would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Molsen in view of Hu to protect active drive circuits and to reduce cracking of the substrate (entire patent).

### ***Response to Arguments***

7. Applicant's arguments filed 05/22/2006 have been fully considered but they are not persuasive.

Applicant's only argument is that none of Molsen et al, Sekine et al, Hiji et al. and Hu et al. teach "the photo-reactant material is aligned by irradiated light in a first direction and the liquid crystal material is aligned by the irradiated light in a second direction different from the first direction". The Examiner is not convinced by this argument since the same is true of the Molsen et al. (as stated above and/or see figure 2).

Accordingly, the rejection of the above claims stand.

Art Unit: 2871

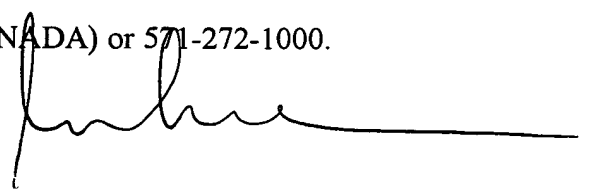
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung Nguyen whose telephone number is 571-272-2297. The examiner can normally be reached on Tuesday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DN  
08/07/2006



***Dung Nguyen***  
***Primary Examiner***  
***Art Unit 2871***